

REMARKS

The status of co-pending applications has been updated in the specification by amendment.

Claims 1-17 and 19-27 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Mori et al. (US 5,281,489) in view of Shi et al. (EP 1009044 A2). According to the Examiner:

Mori et al. teaches an electroluminescent element comprising a mixture of a fluorescent luminescent agent, at least one hole moving and donating agent (hole transporting agent) and at least one electron moving and donating agent (see abstract). Mori et al. teaches anthracene compounds may be used as the hole moving and donating agent, but fails to teach the specific anthracene derivative of formula (I) (see col. 4, lines 40-41). Shi et al. teaches in analogous art hole transporting anthracene derivatives (see abstract). Formula (I) shown on page 3, R3 or R4 may be independently an aryl group of up to 20 carbons (see page 3, lines 14-29), which includes phenyl groups and bi-phenyl groups. In a formula such as VII shown on page 5, the fused rings attached to the anthracene skeleton may further have a phenyl group for R3 per instant claim 3.

The teaching of the R3 and R4 groups encompasses the limitations of claims 2-17. It would have been obvious to one of ordinary skill in the art at the time of the invention to have used the Shi et al. compounds in the Mori et al. light emitting layer, because Mori et al. teaches a hole transporting material such as an anthracene derivative should be used in the mixed light emitting layer. Mori et al. further teaches many fluorescent materials for the fluorescent luminescent agent, which includes blue emitting compounds such as perylene and green emitting compounds such as coumarins (see col. 23, line 48 to col. 24, line 48) per instant claims 19 and 20. The electron transporting component of the Mori et al. light emitting layer reads upon the co-host of claim 22. The electron transporting material may be a polymer per instant claim 23 (see col. 13, line 26 to col. 14, line 5). The electron transporting material may also include metal complexes of 8-hydroxyquinolines per instant claim 25 (see col. 8, lines 15-30). Mori et al. fails to teach the electroluminescent element specifically produces white light; however, Shi et al. teaches it is known the color of the EL device can be tuned by using fluorescent dyes of different emission wavelengths (see par. 32). It would have been obvious to one of ordinary skill in the art to have selected the fluorescent dyes of the Mori et al. device to emit white light if desired, because Shi et al. teach in analogous art that a combination of dyes of different emission wavelengths will produce a desired color.

It is clear that the teachings of Mori and Shi are both extremely broad as to the use of their specified layer components. Mori teaches a dozen different kinds of hole-transport materials, not just anthracenes. Shi is also very broad as to all of the types of anthracenes that can be used. However, none of the examples within either of the patents suggests any of the narrowly limited anthracenes of Formula (I) in claim 1 of the invention. The requisite anthracenes are not symmetric and have R₉ different from R₁₀. R₉ is a biphenyl group with no fused aliphatic carbon rings. R₁₀ is an *-o-* or *m-monosubstituted* phenyl group where the substituent is from a specific Markush listing.

Turning to the comparative examples in the present application:

Comp-1 is within Formula IV of Shi and the same as his Compound 26

Comp-2 is within Formula II of Shi.

Comp-3 is the same as Compound 26 of Shi.

Comp-4 is the same as Compound 9 of Shi.

Comp-5 is within Formula III at page 4 of Shi and like compound 14 but not a bianthryl.

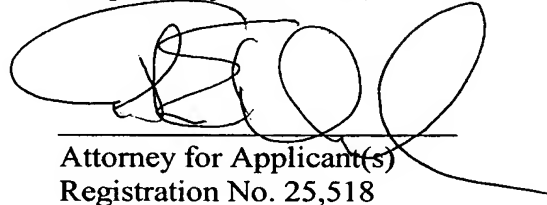
All of the comparison materials are within the broad teachings of Mori.

Formula II of Shi is generic to the present selection claims. The present invention, however, is not obvious over the cited art. Table 1b at page 35 of the specification shows that with a thickness of 200 micrometers, Inv-1 of the invention provides superior (+35%) operational stability compared to Comp-1. This was not taught in the art. Similarly, Table 2b further confirms the advantage of the invention in showing that the comparisons are greatly deficient in stability or, in the case of Comp-4, that a working device could not be made. The samples in Table 2b performed far worse than the inventive samples.

It does not appear that the references cited by the Examiner suggest the beneficial effects on stability to be attained using the selection of the invention. All of the Comp samples are within the teachings of the "best mode" of the references yet they exhibit unsatisfactory stability.

In view of the foregoing amendments and remarks, the Examiner is respectfully requested to withdraw the outstanding rejection and to pass the subject application to Allowance.

Respectfully submitted,



Attorney for Applicant(s)
Registration No. 25,518

Arthur E. Kluegel/dlm
Rochester, NY 14650
Telephone: 585-477-2625
Facsimile: 585-477-1148

If the Examiner is unable to reach the Applicant(s) Attorney at the telephone number provided, the Examiner is requested to communicate with Eastman Kodak Company Patent Operations at (585) 477-4656.